Faculty of Cognitive Science and Human Development

THREE - DIMENSIONAL (3D) ONLINE HOUSE MODEL

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THREE-DIMENSIONAL (3D) ONLINE HOUSE MODEL

LINDA DUNGKUNG

This project is submitted in partial fulfilment of the requirements for the degree of Bachelor of Science with Honours
(Cognitive Science)

Faculty of Cognitive Science and Human Development

UNIVERSITY OF MALAYSIA SARAWAK
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The project entitled Three-Dimensional (3D) Online House Model was prepared by Linda Dungkung and submitted to the Faculty of Cognitive Science and Human Development in partial fulfilment of the requirements for Degree of Bachelor of Science with Honours (Cognitive Science).

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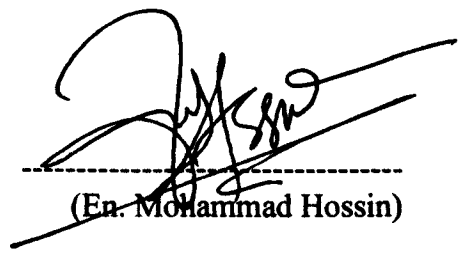

(En. Mohammad Hossin)

Date:

15/06/05

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ABSTRACT

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LINDA DUNGKUNG

Nowadays, the greatest challenge of doing business is about how to remain survive. The challenge to every business organisations is to apply the new productivity that being made possible by technology advances and automation on their business strategies. At the same time, three-dimensional (3D) industries are expanding its wings and has introduced a new technology such 3D graphics with infinite benefits. Therefore, this project is about introducing a new dimension on doing advertisement by using 3D modelling techniques in constructing an online website. The 3D model of the house is constructed by using the 3D Home Architect Home Design Deluxe 6.0, while the website is developed by using Macromedia Dreamweaver MX. This project aims to apply new technology to advertise and promote product in the house marketing sectors where at the same time also try to encourage people within the market to use this method.

ABSTRAK

MODEL RUMAH TIGA-DIMENSI (3D) SECARA TERUS

LINDA DUNGKUNG

Pada masa kini, cabaran terbesar bagi menjalankan perniagaan adalah bagaimana untuk kekal beroperasi. Setiap organisasi perniagaan menghadapi cabaran untuk mengaplikasi produktiviti terbaru yang telah dihasilkan oleh penggunaan jentera dalam industri dan kemajuan teknologi ke dalam strategi perniagaan mereka. Pada masa yang sama, industri tiga-dimensi (3D)sedang melebarkan sayapnya dengan memperkenalkan suatu teknologi baru seperti grafik 3D yang manfaatnya tiada had. Oleh itu, projek ini adalah bertujuan memperkenalkan dimensi baru bagi membuat pengiklanan dengan menggunakan teknik permodelan 3D bagi membina halaman web secara terus. Model 3D bagi rumah dibina dengan menggunakan 3D Home Architect Home design Deluxe 6.0, manakala halaman web pula dibangunkan dengan menggunakan Macromedia Dreamweaver MX. Projek ini bermatlamat untuk mengaplikasikan teknologi terbaru bagi mempromosikan dan mengiklankan produk dalam sektor pasaran rumah di mana pada masa yang sama juga cuba untuk menggalakkan mereka yang berada dalam pasaran untuk menggunakan kaedah ini.

CHAPTER 1
INTRODUCTION

1.0 Introduction

The title of the project system, which is going to be built, is Three-Dimensional (3D) Online House Model. This project is concerned about the construction of the 3D model of the house which is going to be sold and also a website to advertise the house. The system will be constructed based on 3D model by using 3D modelling software that is called 3D Home Architecture Deluxe 6.0. The focus of the project is more upon the development of the 3D house model, which can finally be access by public user through the Internet.

Nowadays, websites that can be found in the Internet usually adopted various types of multiple media such as animations, pictures, images and text. 3D Online House Model website is a type of online advertisement that advertises house and at the same time offers information about the house which is on sale. This proposed project would be able to attract the interest of Internet users and potential customers to buy the house on sale. The difference about this website project to the existing website is that it is built with new multiple media such as the 3D image of the house in a more improved environment. This means it is unlike the ordinary website which mostly be found by users on the World Wide

Web. The house, which is modelled in 3D, enables the users to take an overall view of the house like in real life.

The website helps to reduce users' effort in searching for house on sale and the details or information about the house they want to buy. This 3D Online House Model Website gives a complete view of the house. The 3D model of the house inhibits the real model of the house in terms of the design of the house, plan of the house and the specific colour of the house. The website will also provide information such as the location of the house, price and contact number for the users which are interested in buying the house to contact.

By proposing this project title as "Three-Dimensional (3D) Online House Model", the predicted outcome is to produce a new way of advertising house on sale through online to attract. Users will not only be able to view the house model in 3D but will also experience to browse and navigate a newly improved website. This means that the website will actually offer users a new interesting and interactive website environment which can encourage users to surf online for information more frequently. However, this 3D Online House Model website only advertise the house on sale, therefore this website does not offer any service on transaction between the advertiser and the users. Nevertheless, the website provides addresses and contact numbers for the interested users. Those potential buyers can contact the addresses and numbers for further business deal. The detail description of the designation of the 3D house model and the website will be discussed in the design chapter.

1.1 Problem Statement

During these days of modern technology, most advertisement of house on sale is still using the conventional way in advertising house. The house developers companies are still using papers such as brochure, pamphlet and newspaper's advertisement to advertise their houses and at the same time try to attract the public interest in buying their house. Some of these brochures and pamphlets are only available from the office of the house developer company. These brochures and pamphlets are also distributed by the agents of the house company in shopping complex. Usually a small counter of information is set up for the public to ask any questions regarding the house on sale. The prototype of the house is also displayed in a see through glass for the public to view.

Unfortunately, these ways of advertising cause some difficulties for the potential buyers to imagine the real house. Brochures, pamphlets and newspaper's advertisement only show images of the house in two-dimensional (2D) image. A 2D image of the house is unable to convey complete information about the house. Buyers will find it is difficult for them to imagine how the house really looks like in real life.

The major problem that the buyers encounter in dealing with buying house through brochure and pamphlet is that both brochure and pamphlet and also agents of the house developer company are only available during office hours. Buyers might be interested in surveying the house off office hours, since buyers will also be probably working during those hours of time. By introducing online 3D house model advertisement, this website enable buyers to access or search the

house of their interest through online Internet connection 24 hours a day as long as the buyers have the Internet connection.

1.2 Objectives

The objectives of this project are as follows:

1. To promote and propose a new way of doing advertisement from brochure and pamphlet to a more technological way of advertising house.
2. To encourage the use of 3D modelling in making advertisement rather than using 2D images.
3. To create a website that can offer buyers information regarding of the house on sale for 24 hours a day.
4. To adopt 3D modelling technique in an online website especially in advertising house as a new dimension of doing advertisement.

1.3 Significance of Project

This project is about trying to promote a new way in doing advertisement for house on sale through online. This is by applying a new technique by adopting 3D modelling in modelling the house. By using 3D model images, this project intend to improve the way the house is presented to buyers in a more easy way to be imagined. It is a new approach in of making house advertisement especially within the Malaysian market. By proposing this project, there would be more house advertisement in 3D images available through online connection.

1.4 Conclusion

This chapter provides a brief introduction to the project by describing the background of the project, the problem statement for the project, the objectives of the project and the significance of the project.

CHAPTER 2
LITERATURE REVIEW

2.0 Introduction

This chapter of literature review gives a glimpse on the introduction of 3D (three-dimensional) modelling, 3D modelling history, its advantages, its applications and also the example of 3D models which had been applied in website environment.

2.1 Literature Review

Mackay, McMahon and Thomson state on their website of 3D On The Web -The Time Is Now the thought that:

> *"Nothing is quite challenging as jumping headfirst into entirely new territory, and 3D modelling is definitely new territory for the majority of people. 3D modelling is most certainly a technical art form and there are literally thousands of technologies and 3D graphics tools to explore. Most of us are exposed to 3D graphics on a daily basis and this is particularly true for people who access the Internet regularly. 3D modelling has infiltrated the web in a big way and it is set to take hold. 3D graphics have the power to create environments that fully*

engage users. They have the power to add that extra ingredient to a website and turn it into something special and only now have web-designers begun to realise the benefits of 3D modelling on the web."

(Mackay, McMahon & Thomson, 2001)

The 3D industry started in 1985 with the Amiga computer, this computer is the first thing to provoke the graphics revolution. In the last ten years, particularly in the past five years, 3D modelling has come to such a long way where it opened the gates to the new technology and made the creative world to become more challenging.

Since there is no truly limit to what can be accomplished with 3D graphics, there is several of 3D modelling tools being produced to maximise the use of 3D graphics. The cost of suitable hardware and software no longer limits the market for 3D graphics. More affordable 3D programs and technology could be found in the market.

Simon Gill, the creative director at Perception DM said:

"Information –rich products do well on the net and 3D can help the decision to consider a purchase."

(Jaworski and Rayport, 2002)

Printed graphics are now trying to put 3D technology to a more practical use. 3D technology is considered as the ladder of the architecture and product design. Movie effects are coalition of 3D technology, for example Garfield. Some

of the cartoon movies fully utilises 3D graphics technology such as Shrek, The Incredibles, and the first cartoon movie created in 3D version Toy Story. Furthermore, 3D graphics are now the spine of mostly every computer game. Even nowadays, 3D technologies manage to permeate educational titles. More application of 3D on the Internet can be view; there are many examples of work on product websites, such as Sony's American Aibo site and BMW's Z8 site. Both sites provide information in a standard two-dimensional (2D) way, but also enable the user to explore the product in 3D and from different perspectives.

It is just the beginning of the domination of 3D modelling. The development of the industry is in stages and it is not about to slow down or stop. 3D graphics soon will completely replace 2D graphics. On the early days of 3D modelling, people find it hard upon dealing with the concepts of advanced mathematical and logic based sequences, which is the foundation of 3D modelling. It is no doubt that it much easier to just draw the design on paper than dealing with the complex concepts and sequences. Nevertheless, people will need to put much effort or skill when conducting brainstorming or initiative thinking in a business environment if they only use drawings.

Nowadays businesses could gain benefits from the use of 3D modelling productively. As an example, a company that designs machine, it took the engineers hours just to build a smooth mental model based on 2D views. But, immediate recognition and positive respond of ideas or thinking about potential design problems from the group members when being presented an image of a 3D model on a computer screen. A design, which is being model close, enough to the physical product gives more advantage in the business area.

However there are always two sides of the stories this go the same upon creating 3D graphics on computer, which could be rewarding or frustrating. Designer is usually used to the concept or mindset where 3D world environment is represented in a 2D space. Therefore, it would be difficult for the designer to add the third dimension, depth to the 2D image. Manipulation of such conversion from 3D world environment to 3D image happens in a dimension that the designer cannot touch or feel.

This is very dissimilar to clay sculpting where we had the advantage of being able to model and mould the clay into shape using our own hands. Instead, to create the 3D model, tools such as stylus pen and mouse are needed to navigate. What basically done when modelling 3D graphics is inputting coordinates from a set of points drawn on the shape using a stylus pen or similar tool.

The development of 3D technology has been dynamic. Nowadays, many of the 3D software inhibit similar technology more or less at the same time. Therefore, this means people who share the same passion and interest of developing 3D graphics is fortunate to be able to use similar techniques. Due to people within this industry of 3D, supporting each other, this industry is maturing rapidly. Techniques are shared across different programs with the help of constant communication.

Before, there has been a lack of good source of educational information for the 3D enthusiast. A large number of good and informative books and magazines are published on the topic of 3D modelling, not just by writers but also the exact person who work in the industry who use the technology every day in

their professional life. Development is always a difficult statement for any area of industry, however it is clear that the 3D industry has made a good start.

According to the article of 3D On The Web-The Time Is Now, Sanyo, Macromedia, Intel-Corporation, Discreet, Cycore and Alias|Wavefront are cooperating, combining their software resources in a promising effort to make 3D on the web universal. It is such a new revolution for web 3D and it just opened the gate of promising benefits that has been long awaited. These new hot technologies have provoked an innovated interest of establishing Internet set up for delivering 3D content across higher bandwidth to home with lower prices for 3D-enabled computers with fast processors. Technology tend to change rapidly and as for the solutions being developed and delivered today are strongly creating grounds for a new epoch of time in information interaction.

The Internet has become essential in many areas that it somehow also becomes indispensable. To aid and shift the paradigm of sales on the Internet, e-commerce (electronic commerce) sites are starting to adopt 3D graphics to distinguish themselves, in order to make people glued on the site, and buy their products.

It is undeniable that the Internet has been hosting so many attractive and informative 3D web sites, which are game sites, virtual communities, and the forward-thinking sports or entertainments site. Nevertheless, the majority of the sites, which is available in the web, remained as a boring ground filled with non-dynamic 2D images. People within the 3D industry have begun to manipulate 3D graphics, where a lot of e-commerce sites attempt to get the viewers to step into a 3D world and interact with something.

Most of 3D graphics on e-commerce sites usually could be seen in three forms. Firstly a 3D model that conduces to sell individual products by allowing the people to try the 3D representation of the real product in a window. Secondly, as a 3D animation cartoon character, that adds variety to sites and banners of the web. Finally as the third form, a virtual worlds that invite people to view around the resorts and hotels on a holiday package selling, as an online game which enable the players to play with each other even though they are miles apart. It is as a site that provides the service of making 3D models, which shows some of their 3D product by allowing people to navigate around.

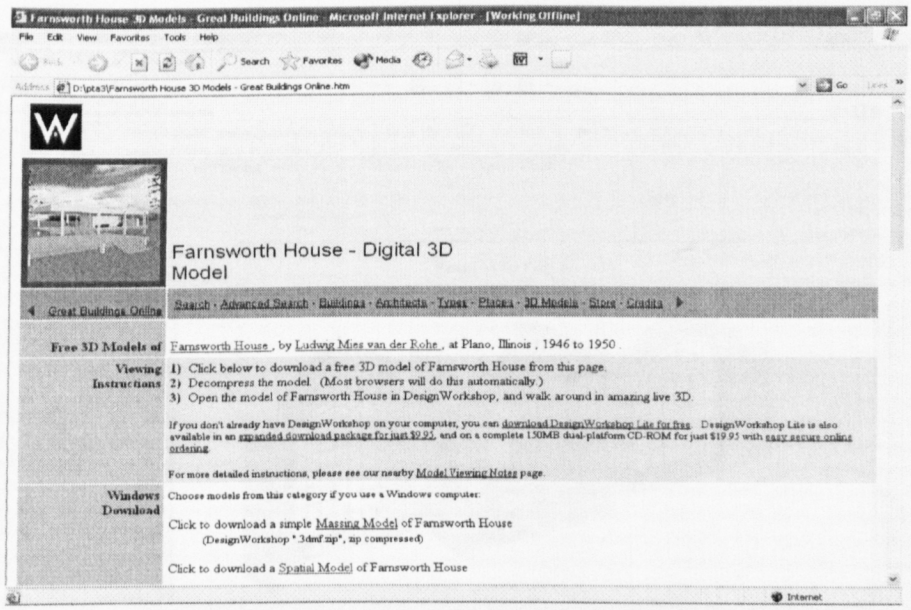

Figure 2.1.1: Farnsworth House – Digital 3D Model

The figure shown above is being retrieved from the website of Farnsworth House-Digital 3D Model from the address http://www.greatbuildings.com.

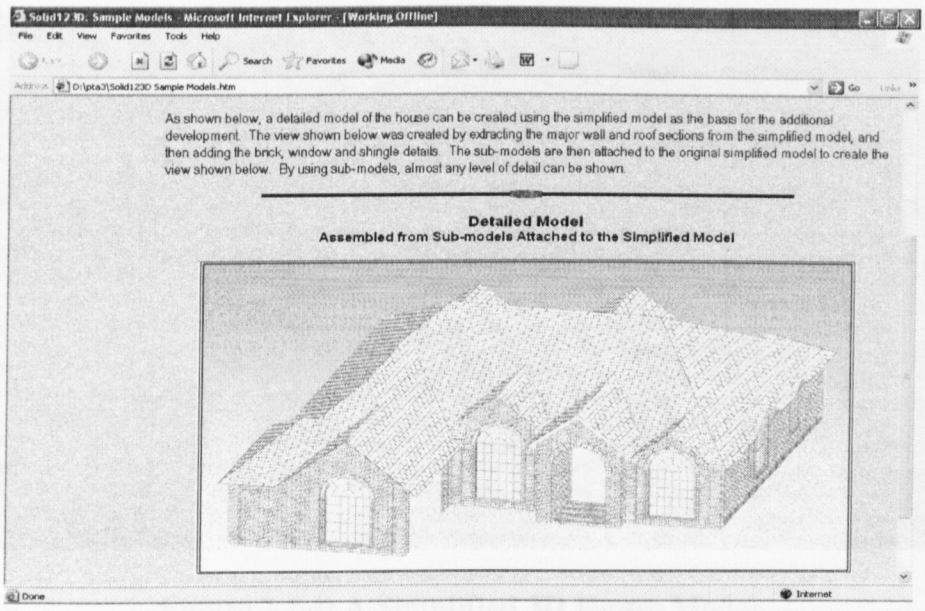

Figure 2.1.2: Solid 123D: Sample Models, "A Detailed 3D House Model"

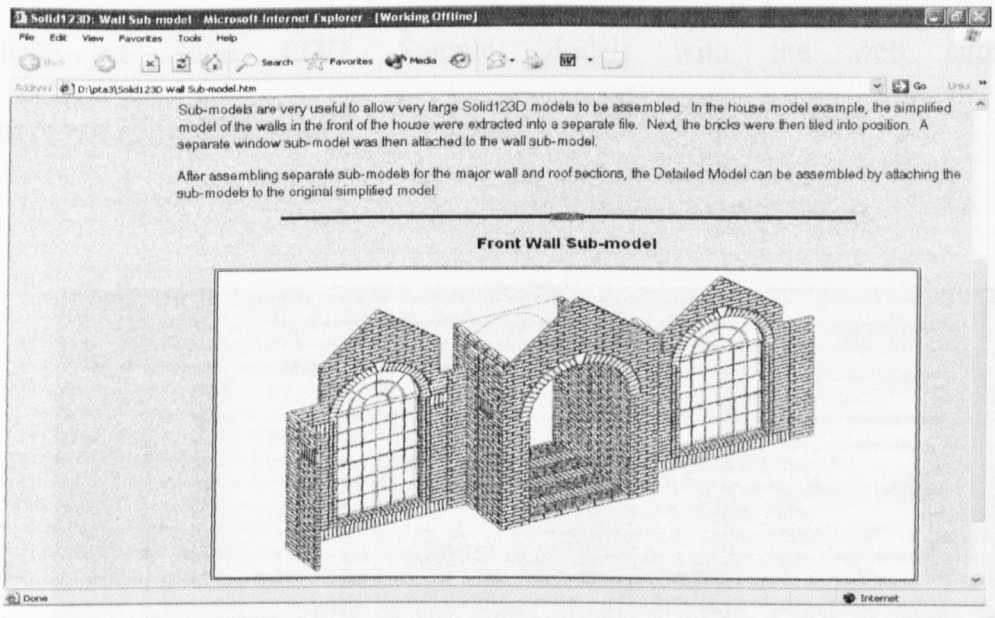

Figure 2.1.3: Solid 123D: Sample Models, "A Wall Sub-model"